R E P O R T R E S U M E S

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TECHNIQUES OF TAPE PREPARATION AND DUPLICATION, WITH SUGGESTIONS FOR A LANGUAGE LABORATORY.

KANSAS STATE DEPT. OF PUBLIC INSTR., TOPEKA

PUB DATE 62

EDRS PRICE MF-$0.25 HC-$1.36 34P.

DESCRIPTORS- *DUBBING, *TAPE RECORDINGS, *MASTER TAPES, *LANGUAGE LABORATORY EQUIPMENT, *AUDIOVISUAL AIDS, GUIDELINES, LANGUAGE LABORATORIES, SECONDARY SCHOOLS, LABORATORY TECHNIQUES, LANGUAGE LABORATORY USE, TAPE RECORDERS, AUDIO ACTIVE LABORATORIES, AUDIO ACTIVE COMPARE LABORATORIES,

PART ONE OF THIS BULLETIN PROVIDES HELP IN THE TWO CRITICAL AREAS OF MASTER TAPE PREPARATION AND DUPLICATION. SUPPLEMENTED BY NUMEROUS PHOTOGRAPHS AND DIAGRAMS OF EQUIPMENT AND DUPLICATION TECHNIQUES, THE BULLETIN DESCRIBES MASTER PROGRAM DUPLICATION USING LANGUAGE LABORATORY EQUIPMENT, A PROFESSIONAL MASS DUPLICATOR, A TAPE RECORDER, A RECORD PLAYER, A SOUND FILM PROJECTOR, AND A SHORT WAVE RADIO. IT EXPOUNDS FURTHER ON DUPLICATING SPEEDS AND CHOICE OF EQUIPMENT AND TAPE BEFORE CONCLUDING WITH A BIBLIOGRAPHY. PART TWO, SUGGESTIONS FOR LANGUAGE LABORATORIES, INCLUDES A DISCUSSION OF CRITERIA FOR DEVELOPING A LANGUAGE LABORATORY PHILOSOPHY, BASED ON THE SPECIFIC FACILITIES PROVIDED, AND DISCUSSES EQUIPMENT SELECTION AND THREE LABORATORY DESIGNS. ALSO IMPLEMENTED BY PHOTOGRAPHS AND DIAGRAMS, THIS SECTION CONTAINS REFERENCE LISTS OF EQUIPMENT MANUFACTURERS, AUDIOVISUAL AIDS SOURCES, AND A BIBLIOGRAPHY ON LANGUAGE LABORATORIES. (AB)

ED0135588

Techniques of Tape Preparation and Duplication

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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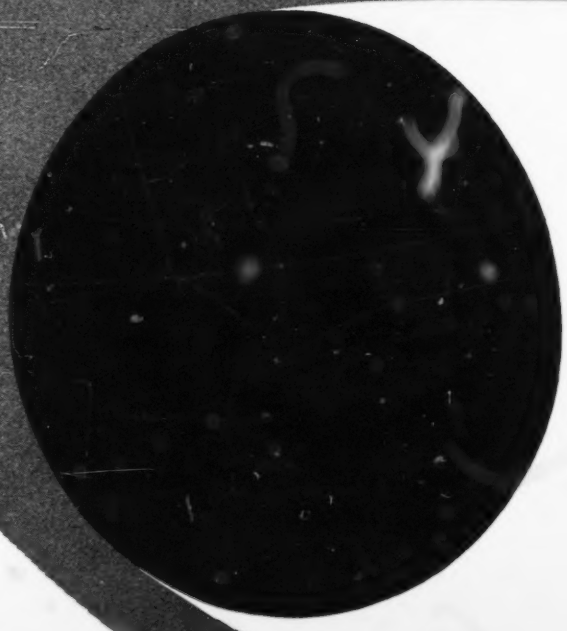
with Suggestions for a Language Laboratory

Issued by:
Kansas State Department of
Public Instruction
Adel F. Throckmorton, Superintendent

Techniques of Tape

1962



with Suggestions for a Language Laboratory

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Introduction

Title III of the National Defense Education Act of 1958 has helped to provide many tools for the upgrading of instruction in the fields of science, mathematics, and modern foreign language. With the advent of these tools, particularly the electronic ones in modern foreign language—where at least 75 per cent of the teachers are women—has come the need for more complete and simplified information on how best to utilize the equipment placed at the disposal of the language teacher. It is the purpose of Part 1 of this bulletin, therefore, to provide some help in two critical areas of the electro-mechanical phase of modern foreign language teaching: master tape preparation and duplication.

Part 2, Suggestions for a Language Laboratory, is a revision of an earlier information brochure on this subject.

Adolf J. Sturchmacher

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Credits:

Booklet Design and Art: George Dial
Photographs: Harold Caldwell

tt Techniques of Tape

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Part 1

I. Master Tape Preparation

Although it is now possible to purchase a large variety of tapescripts voiced by native resource persons, quite often these tapes are not coordinated with the particular drill or lesson which the language teacher has been presenting in her classroom. It is, therefore, necessary for the teacher to prepare her own taped material. The language teacher of today must have near-native ability in the four skills—speaking, understanding, reading and writing—of the language she is teaching and her own tape will provide satisfactory learning experiences for her students. However, commercial tapes containing a variety of native voices should be used frequently.

Preparation of a tape for student use is not as easy as it may seem to be on the surface. Almost anyone can take a microphone and begin talking, it is true, but to make a good, effective tape, something more is needed. There must be careful preplanning and certain criteria considered:

1. Is the objective of the exercise clear in the mind of the teacher?
2. Will the objective of the exercise be clear to the students as a result of instructions given?
3. Are the instructions given in English?
4. Is a written script developed?
5. Has the script been voiced for practice prior to recording?
6. If pauses are to be left for student response, are they long enough to challenge but not long enough to produce boredom?
7. Does the pace of the exercise move along naturally?
8. Is the entire exercise under 20 minutes?

When each of these questions can be answered in the affirmative, the teacher is ready to record. In recording, a pleasant voice with precise diction and rich tone qualities is desirable. Also, it should be kept in mind that:

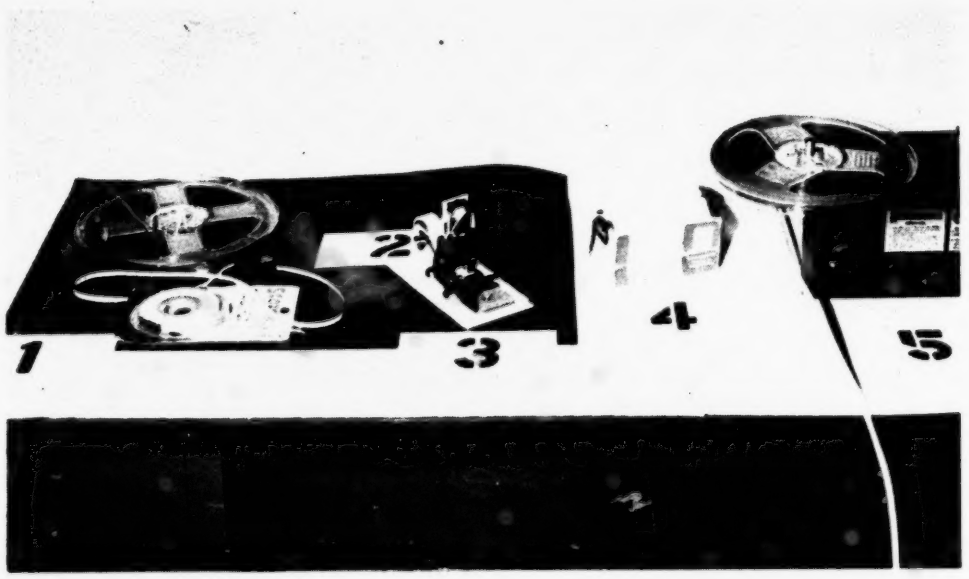
1. Utterances must be short (six to eight syllables) for beginners.
2. The correct response is given after the student's response. The length of the pause left for the student is usually two times as long as the teacher's cue space. The sequence is teacher-student-teacher.
3. An example is provided for each new type of drill.
4. Unfamiliar material is not introduced (at least not in the beginning).

6.

Recording should be done in a zero or near-zero extraneous noise area. Care should be exercised, too, in flipping pages of the script, because the crackling noise of a turned page is easily picked up by a sensitive microphone. Another source of annoyance could come from a carelessly erased tape. If a tape has been used previously, it is advisable to erase it on a bulk eraser prior to using it for making a master tape.

Besides the obvious equipment and accessories needed for preparing a taped lesson—magnetic tape, recorder, take-up reel, and microphone—there are a number of supplementary items that will increase the efficiency of the operation as described and illustrated below.

1. *Leader and timing tape.* About two or three feet of this tape can be used at the beginning and end of the magnetic tape to protect recorded lessons from being lost by having the end of the tape broken off. It can also be used between different recorded lessons for quick identification, and it can be written on with pen or pencil.
2. *Splicing tape.* Regular splicing tape will not adhere to the recording or play head as easily as the ordinary transparent variety and is therefore recommended.
3. *Tape splicer.* These mechanical devices simplify tape splicing by providing cutting edges and clamps to hold the tape in place during the process.
4. *Stick-on-labels.* Labels of this type are needed to identify taped programs, especially where students have access to tapes.
5. *Bulk eraser.* This electro-magnet will save valuable minutes in erasing tapes.



Before the taped exercise is presented to the students, it should be played and edited. In editing a tape, mistakes or imperfections may be removed by either recording over the material that needs changing or by cutting it out with splicer or scissors and splicing. Whichever process is used, the counter on the tape recorder is very useful. These steps are recommended:

1. Note the number on the counter where the part which is blighted begins.
2. Let tape play until the end of the blighted area is reached and again note the counter reading.
3. If erasing or rerecording, rewind tape to first number noted on the counter. If splicing out imperfection, make a cut at the last number noted on the counter, place the loose end of the tape around the take-up reel, holding it with the finger until it adheres to the tape on the take-up reel, and rotate the reel in the rewind direction to the first number noted on the counter.
4. If erasing, place the machine in record position, turn the volume down to zero and erase to the last number noted on the counter.
5. If rerecording, place the machine in record position and record to the last number noted on the counter. Previously recorded material is erased as new material is recorded.
6. If splicing, cut the tape at this position, remove the blighted piece and splice the ends of the main tape together again. The piece that has been cut out can be used again by splicing it to either end of the tape.

II. Master Program Duplication

As mentioned previously, it is quite common in this era of audio-lingual modern foreign language teaching for book companies or materials centers to have magnetic tapes available for purchase on which are recorded pattern drills, pronunciation exercises, oral tests, etc. However, the acquisition of these materials brings forth problems, too. Very often the classroom teacher who receives this prerecorded material wishes to make it available to her students for individual study. She is fearful to do so, however, lest the master tapes be damaged in some way. The need thus arises for tape duplication or dubbing (as it is commonly known), with the idea of preserving the costly master tape and at the same time providing practice tapes for the students.

8.

Some language teachers go one step further and make two duplicate tapes: one for laboratory practice and one for student take-home practice. Tapes are then marked *M* for master, *L* for laboratory, and *S* for student take-home.

It is to be stressed at this point that copyright privileges should be checked closely before either of the following processes of duplication is employed. Usually there is a policy statement about this accompanying the tape or record. If not, permission for duplicating can generally be obtained by writing to the publisher of the material.

A. Using Laboratory Equipment for Duplication

In most laboratories the process of duplicating a master tape is rather simple. Blank tapes are placed on the recorders in the student positions, and the machines are set to record as the master tape is played from the Master Console. Some laboratory equipment (Monitor) provides a switch at the console which controls the simultaneous starting and stopping mechanism of the student tape recorders. There is one caution to be exercised in this process, unless the students are also recording, and that is to make sure that the microphone is not plugged in at the student recording position. The loading of the recorders may be done by the teacher, lab assistant, or student, depending upon the situation.

Laboratory units are used for mass tape duplication.

tt Techniques of Tape

B. Using a Professional Mass Duplicator

Some school systems, which have a large concentration of language teachers, have faced up to the critical need of swift and efficiently taped program duplication by centrally locating a professionally designed mass duplicator. Most mass duplicators are capable of reproducing one or many half-hour recorded programs in about four minutes. This is not only a great saving of time, but better tapes are produced. The main reason that equipment of this type is not more readily available to the language teacher is the prohibitive cost of each unit.

The Wichita school system has a professionally designed mass duplicator for master tape duplication.

This tape duplication center at Campus High School features three Ampex units.

C. Using a Tape Recorder

The one facility for dubbing tapes that seems to be most readily accessible to the average language teacher is a tape recorder. There are many who duplicate a tape by playing it on one recorder and holding the microphone of a second one near the speaker of the player. This method is relatively unsatisfactory for these reasons:

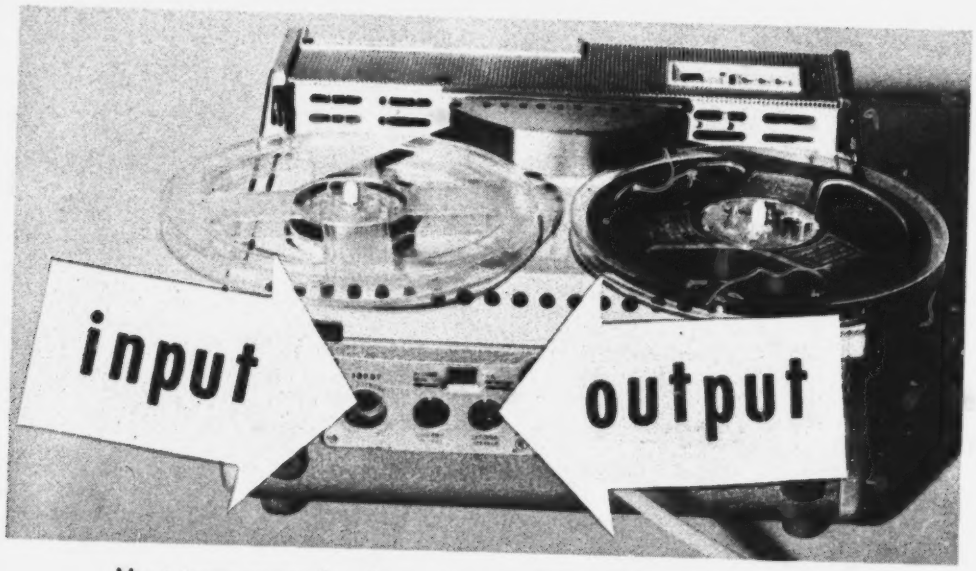
1. The microphone picks up all extraneous noises and cuts down on the audible quality of the tape.
2. The acoustics of a room, unless the room is acoustically treated, will usually produce an echo that is picked up on the recorder.
3. The distance of the microphone from the speaker is apt to vary, thus causing distortion.

The most satisfactory method with two recorders is to use a patch cord which has a phone plug on each end. The cord should be at least three feet in length to allow for adjustment of distance between machines. In the back, top, or side of each tape recorder there are usually two or three phone jacks (outlets) marked Microphone-Input, External Speaker, and Output. One end of the patch cord should be inserted in the External Speaker or Output jack of the player recorder and the other end in the Microphone-Input jack of the slave recorder. It is best to use two machines of the same make so that the impedances * match, but machines that differ in make and model are often compatible in impedances.

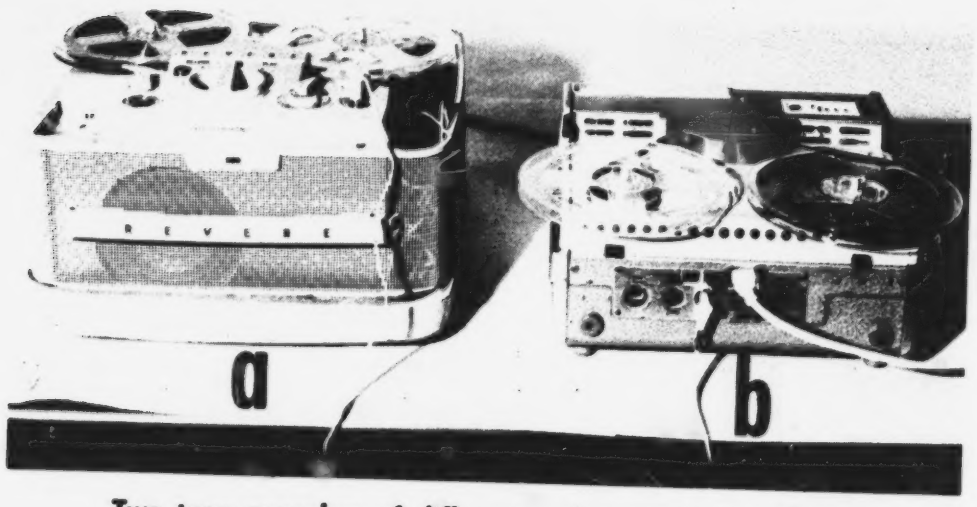
* A rating of ohms of the input and output of any electrical component, generally referred to either as "high" or "low" impedance. Importance is that, in connecting any two components, the output and input impedances much match.

Techniques of Tape

11.



Most tape recorders have two or three phone jacks that can be used when recording, playing, or duplicating. This one has an Input jack for microphone or patch cord from a radio, Hi-Fi, or another tape recorder and an Output and External jack for reproduction of taped programs on another recorder.

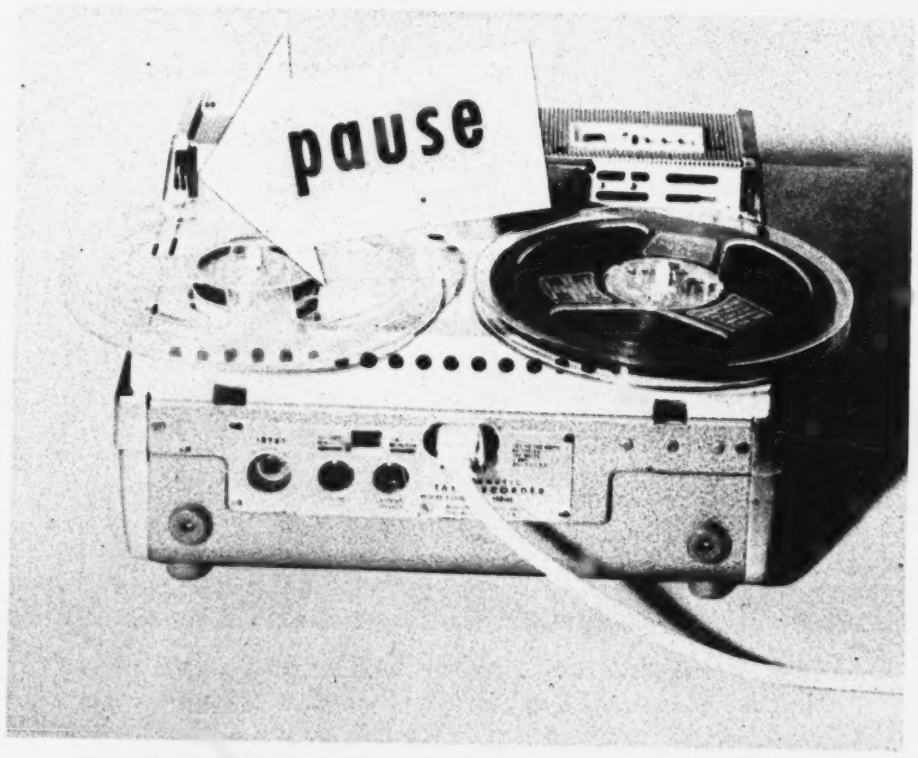


Two tape recorders of different makes can be "patched" together for duplicating purposes by means of an electrical cord. In the above picture, recorder (b) is the player (the plug is inserted into the External speaker jack) and recorder (a) is the slave unit (the plug is inserted into the Input jack).

After this electronical connection between the two machines has been made, the master tape should be placed on the player recorder and the blank tape on the slave recorder. Care should be exercised in this apparently simple maneuver because a mistake could be rather disastrous. If the master tape is placed on the slave recorder and the machine is set for recording, the master will be erased. Remember: The master tape goes on the player recorder.

When starting the machines, the slave recorder should be started before the player recorder. In stopping, the reverse procedure is used: First, slave recorder, then player recorder. It is recommended that at least one trial operation be undertaken to see that all adjustments and connections have been properly made.

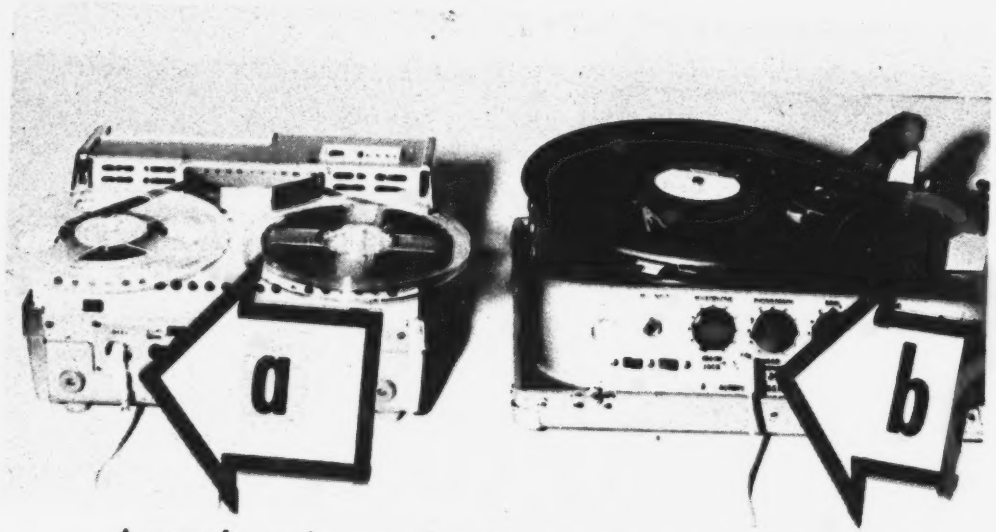
A by-product of the duplication process is adding pauses to a student tape that were not on the master tape. This is accomplished by pushing a "pause button" on the player recorder and allowing the necessary time for repetition or response to elapse before releasing it. The pause will be apparent on the student tape while the master remains unchanged.



The "pause button" is usually located near the other controls of the tape recorder. Besides serving as a start-stop control when the machine is turned on, it is also the mechanism that keeps the machine from going into record position inadvertently.

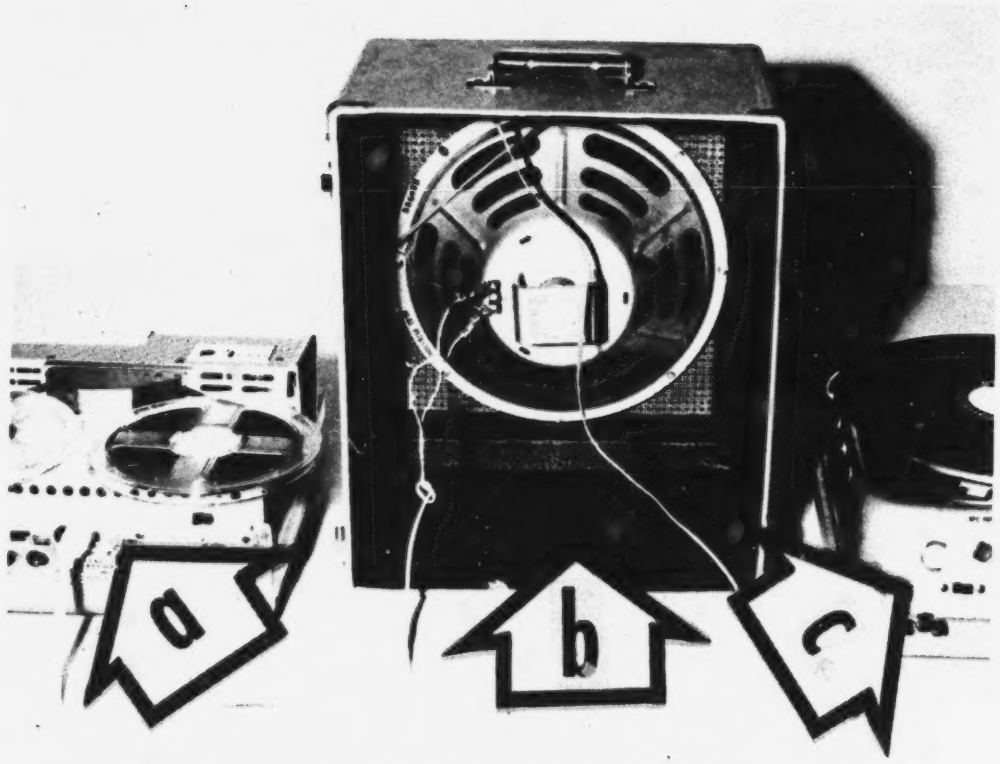
D. Using a Record Player

If there is a record to be dubbed onto tape, the above procedure is applicable. One end of the patch cord is inserted into the Output jack of the record player, and the other end into the Input jack of the tape recorder. The same starting-stopping procedure previously mentioned should be used.



A record may be reproduced on tape by using the patch cord and inserting one end into the Output jack of the record player (b) and the other into the Input jack (a) of the tape recorder.

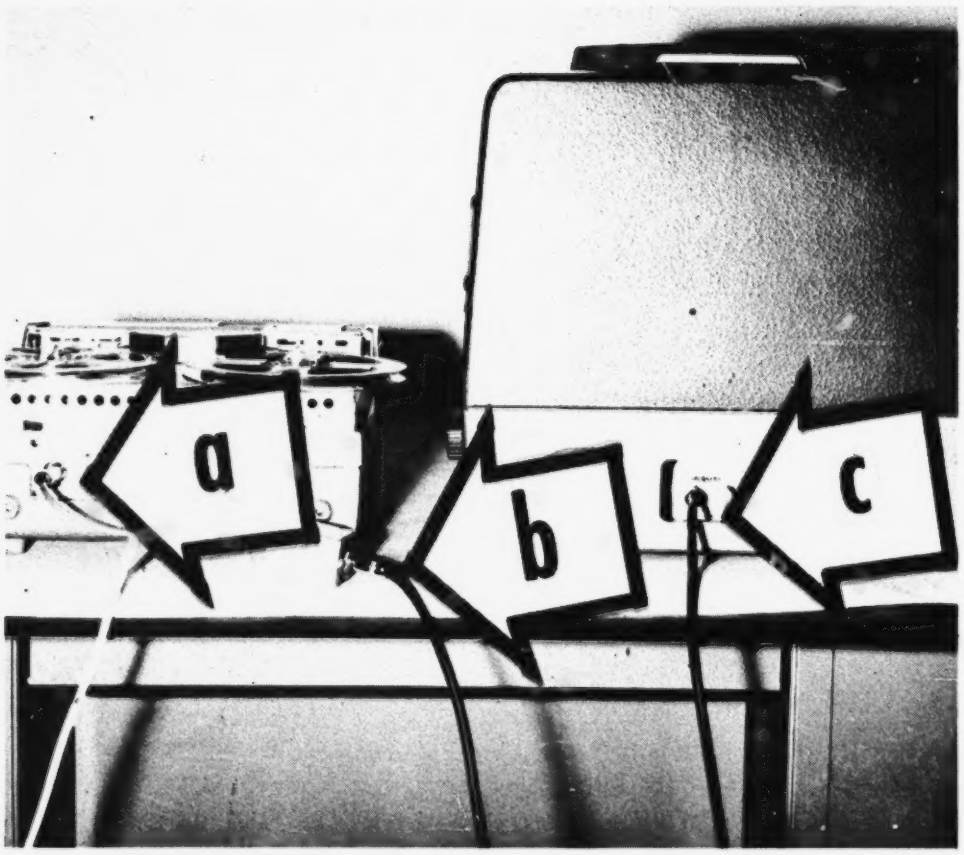
Some record players do not have an Output phone jack, and it then becomes necessary to use a patch cord with a phone plug on one end and two clips on the other. The phone plug is inserted in the Input phone jack of the tape recorder and the two clips are attached to the terminals of the speaker. If there are four wires leading to the speaker, avoid the red and blue ones which carry dangerously high voltage. A radio repairman can usually install an Output phone jack in a record player not originally equipped with one.



When a record player has no Output jack, the terminals of the speaker (b) will serve to transmit sounds from the record player (c) to the Input jack of the tape recorder (a).

E. Using a Sound Film Projector

Occasionally the sound track of a 16-millimeter film may offer itself as master tape material. It is possible to duplicate the sound track by again using a patch cord and inserting one of the phone plugs into the speaker Output jack and the other end into the Input jack of the tape recorder. Generally, an adaptor is needed in this process because the phone plugs and jacks are not standardized. If there is an impedance problem involved, compensating resistors are used to correct the mismatch.

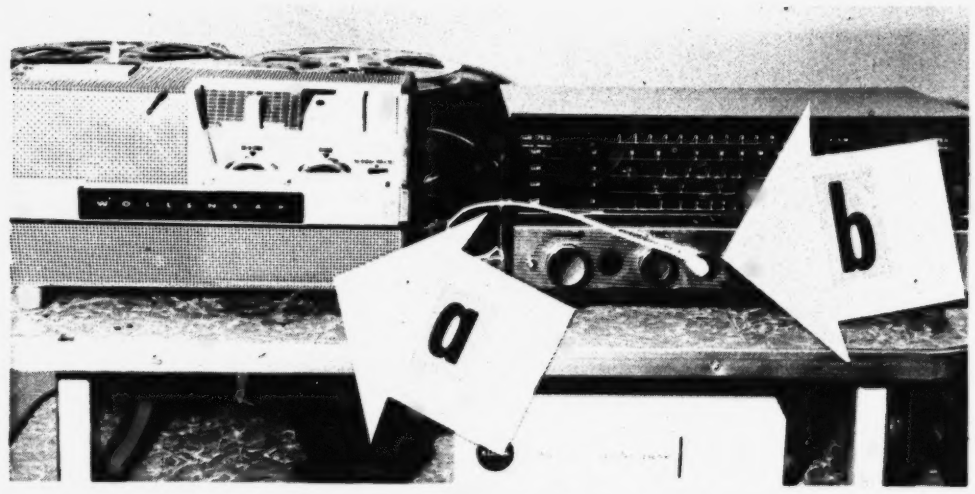


By using a patch cord (special adaptor usually required) the sound track of a 16 millimeter sound projector can be duplicated on tape in the above manner. One end of the patch cord is inserted into the speaker jack of the projector (c) and the other end in the Input jack of the tape recorder (a). In the above picture, a special adaptor was used at (b) and at (c) because the size of the plugs was not standard.

F. Using a Short Wave Radio

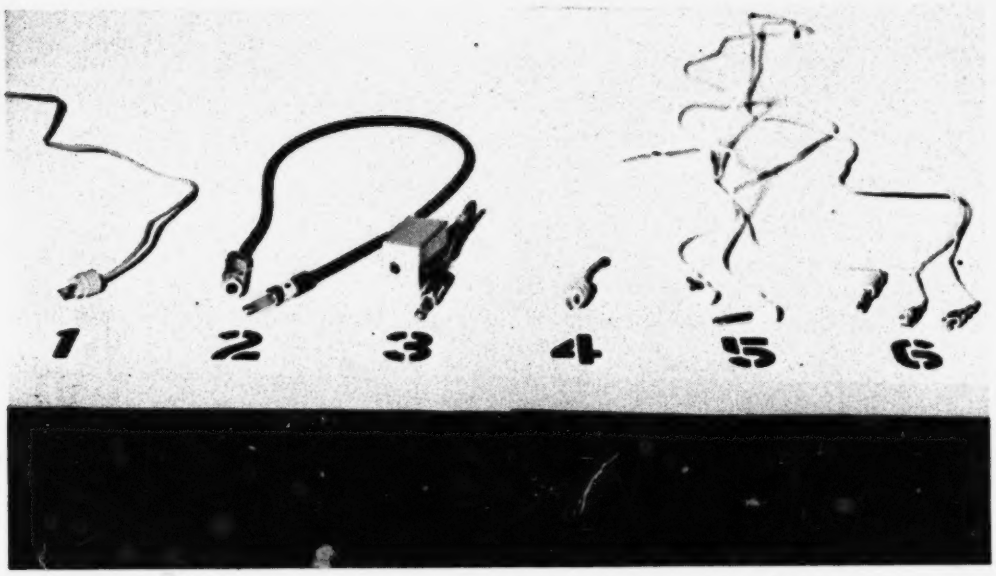
A master source for duplication that has been neglected in language study is that of the short-wave radio. The reasons for this neglect are undoubtedly the absence of good short-wave receivers and the fact that most of the programs are better received at night. It is a suggestion, though, that excellent material can be obtained from this source for use in foreign-language classes, particularly at the third- and fourth-year levels. The simplest way to tape these programs is to place the microphone of the tape recorder near the speaker of the radio.

The most efficient process, however, is to use the patch cord and utilize the output-input-jacks of the radio and tape recorder respectively. If a good receiver is available, students could take turns making the tape recordings.

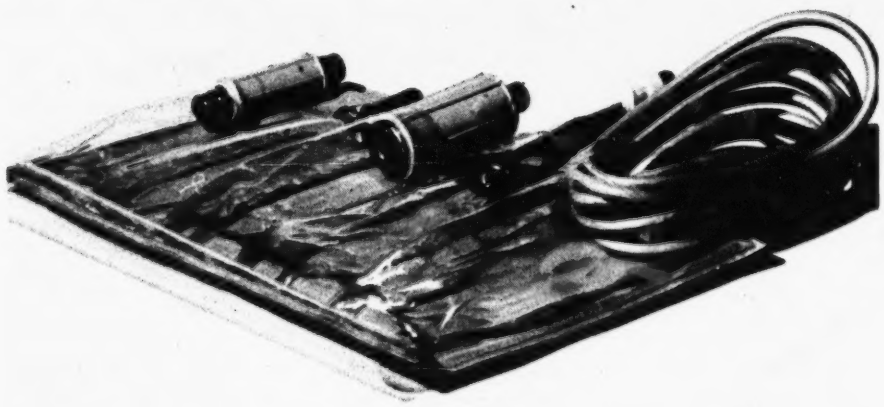


In duplicating a radio program, if the radio has an Output jack, one end of the cord is inserted into the radio Output (b) and the other end into the Input of the tape recorder (a). If no Output jack is available, and the radio is large enough, the terminals of the speaker may be used as the Output.

The idea of compatible phone plugs and phone jacks should always be kept in mind when considering purchase of equipment that might be used for duplicating purposes. There are adaptors available from radio, television, and electronic equipment dealers which can be used in emergencies, but a great deal of time is saved if this need is anticipated.



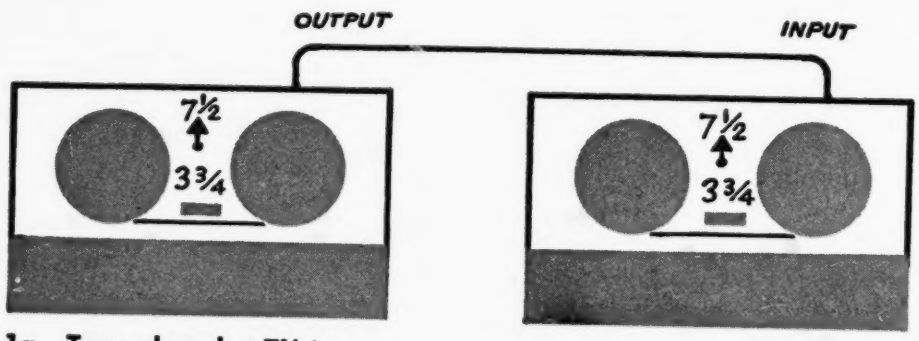
The need for patch-cord adaptors is illustrated by this variety: (1) Three-prong Califone plug (2). Bell and Howell small plug with adaptor for standard plug. (3) Standard plug adaptor. (4) Two-prong Califone plug. (5) Wollensak cord with standard plug on one end and RCA small plug on the other. (6) Patch cord with standard plug on one end and clamps on the other.



This Hi-Fi Jumper Cable Kit by Olson is relatively inexpensive and will take care of most needs for adaptors.

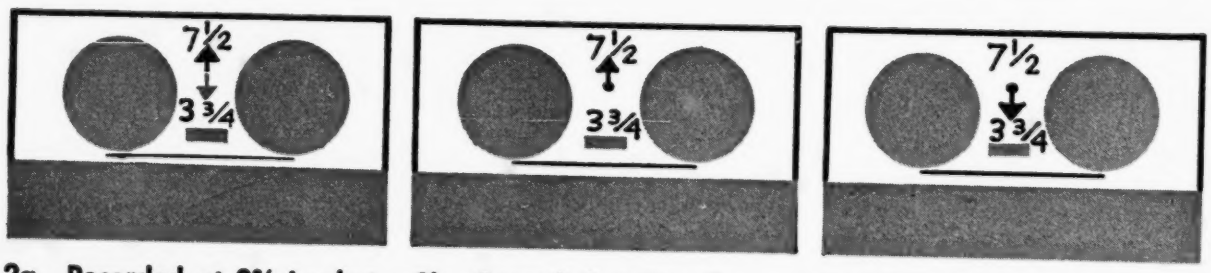
III. Duplicating Speeds

It is essential that a tape be duplicated at the fastest speed possible, while at the same time retaining original fidelity. Unless special duplicating equipment is available, such as the Mass Professional Duplicator or a recorder with a 15-inch-per-second (i. p. s.) speed, it is better to duplicate a 7½-ips recorded tape at 7½ ips, (illustrations a, b). If, however, the master tape is recorded at 3¾ ips, it may be copied in half the time by playing it at the 7½-ips speed and recording it at 7½ ips. When played, the original 3¾-ips speed must be used (illustrations 2 a, b, c).



1a. Tape played at 7½ ips

1b. Better dubbed at 7½ ips than 3¾ ips



2a. Recorded at 3¾ ips but played at 7½ ips

2b. Recorded at 7½ ips

2c. Played back at 3¾ ips

IV. Choice of Equipment

Generally speaking, the most expensive equipment (Ampex, Sony, Concertone) is best for duplicating purposes. However, good duplicate tapes can be made with the tape recorder ordinarily used in language study. Care should always be exercised to obtain the best for your purpose. Ask for help from your State Foreign Language Consultant or other qualified language teacher if you are not sure about what has been considered for acquisition.

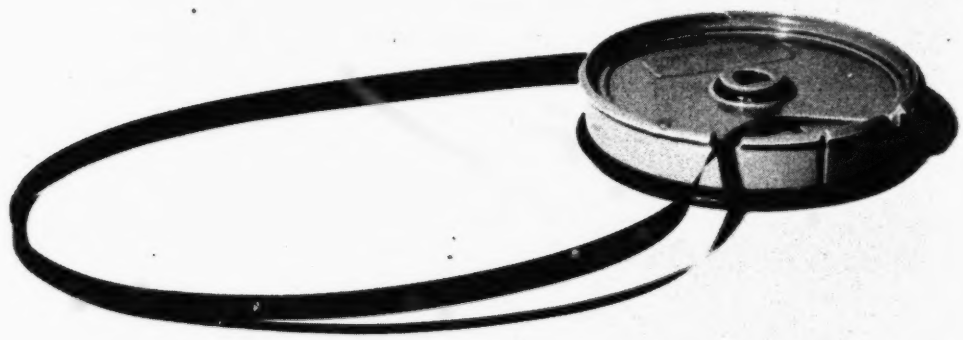
V. Choice of Tape

There are several grades of magnetic tape on the market today. Judgment should be exercised so that the best tape possible for the money is obtained. Tape that is too thin (½ mil) often will stretch too easily and produce distortions. Tape that has a plastic or acetate base will often break easily. Where the difference is only a few cents between the acetate and the Mylar base tape, the latter is recommended. It is recommended, too, that the tape chosen should have a silicone lubricant as a coating in order to reduce wear on the magnetic heads of the recorders.

Magnetic tape may be purchased at various lengths: 300 feet, 600 feet, 1200 feet, 1800 feet, 2400 feet and 4800 feet. Usually the 600-foot length (five-inch reel) is chosen for student use in the laboratory. It offers enough space for a 30-minute program recorded at 3¾ ips or a 15-minute program at 7½ ips. Occasionally 300 foot (three-inch reel) tapes are used where the recorders play only at the 3¾-ips speed, thus providing a 15-minute program for laboratory drill. It is a good idea to have several blank tapes of the 1200-foot (seven-inch reel) length on hand to use for dubbing professionally prepared master tapes which usually are recorded at 7½ ips on a 1200-foot reel. The need for 1800-foot, 2400-foot (10½-inch reel), tapes in language study would be extremely rare.

Cartridges containing various lengths of tape are now being used by many language teachers. The theory behind their usage is that they save time and tape

by eliminating breakage by students. Another innovation is the continuous-loop tape (below) which allows a program to repeat itself without manual manipulation of the machine.



Audio Vender by Cousino, Inc., Toledo, Ohio.

It is very important for the language teacher to anticipate the number and type of tapes that he or she will use in a year. More often than not, needed equipment lies idle because advanced planning has not provided the teacher with spare tapes.

VI. Tape Storage

An often neglected item in the planning of a language laboratory or language classroom where taped programs are used is that of storage space. Unless tapes are carefully marked and placed in properly designated areas, master and student tapes can easily be confused with each other.

VII. Summary

The National Defense Education Act of 1958 has helped to provide many of the electromechanical devices now used in teaching modern foreign languages, but it has not solved all of the problems involved in their usage. Master tape preparation and master source duplication are two areas of primary concern to the teachers who would use this equipment.

Many of the advantages provided by these new teaching aids can be negated if lesson or drill tapes are not carefully and efficiently prepared. Organization of material, quiet environment, pleasant recording voice, and techniques of recording are almost as important as having a native speaker voice the tape.

Master source duplication, whether tape, record, radio, or film sound track, is very important to the language program. Through techniques now being used, the teacher can provide student tapes without risk of ruining costly master tapes as well as furnish supplementary material from other sources.

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22.

Part 2

Suggestions for a Language Laboratory

Before the purchase of any equipment to be used in language study, some kind of philosophy should be developed concerning its ultimate worth and contribution to the program. Even if only the bare essential, the tape recorder, is considered, some thought as to its effective use should be given. With the laboratory, more detailed planning and consultation with language specialists are necessary.

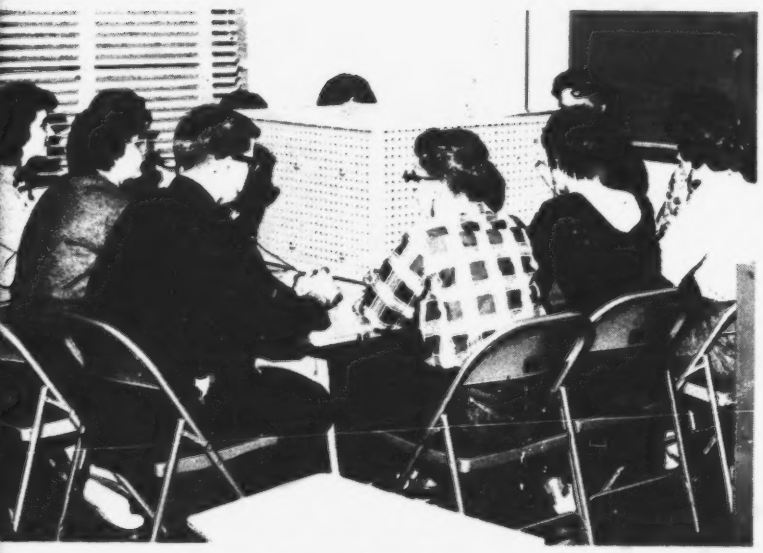
In forming a philosophy concerning language laboratory equipment, the following questions must be considered and answered:

1. *Are group listening facilities to be provided?* Here one needs an ordinary tape recorder or record player with a good external speaker so that the entire group can listen at one time. A better setup is to use a jack box, or a series of jack boxes, depending on the number of students involved, and a set of earphones for each listener.

a. This.

b. Or this.

2. *Are facilities for group listening and individual recording to be provided?* The equipment mentioned above can be expanded to include another tape recorder to be used by the individual student to record his voice after listening.

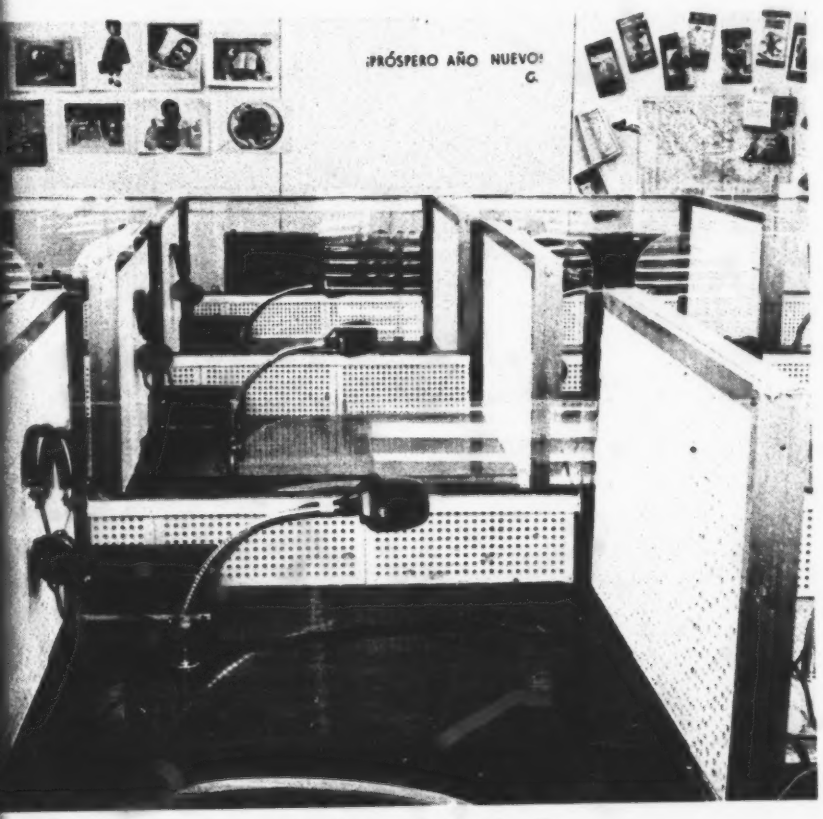


a. Group listening.

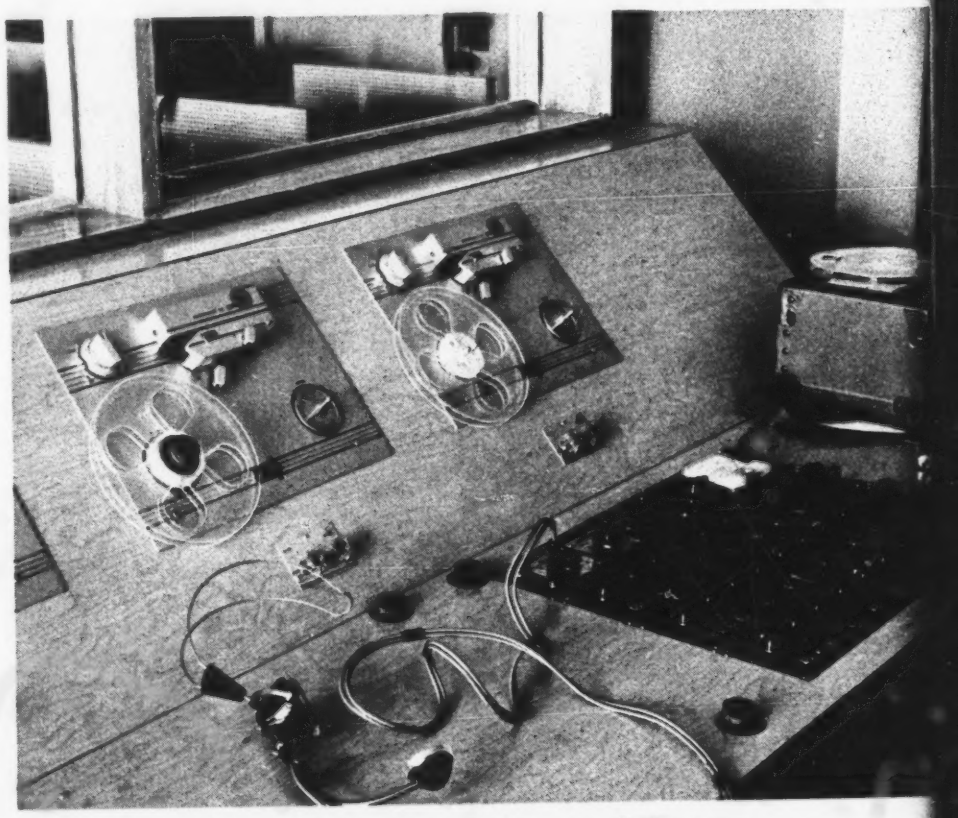
b. Individual recording.

3. *Are facilities to be provided for individual listening and subsequent recording?* To have facilities for this type of activity, it is advisable to construct individual booths and have them wired to a central control unit. The equipment in the booth includes only a set of earphones and a microphone. With this arrangement, the student can hear the master tape played from the central control and make his response into the microphone. The student response is not recorded in the student's booth but rather "bounces" back to him through

his earphones. If the instructor operating the central control wishes the student to record his responses, he can push a control button and the recording will take place at the central control unit.



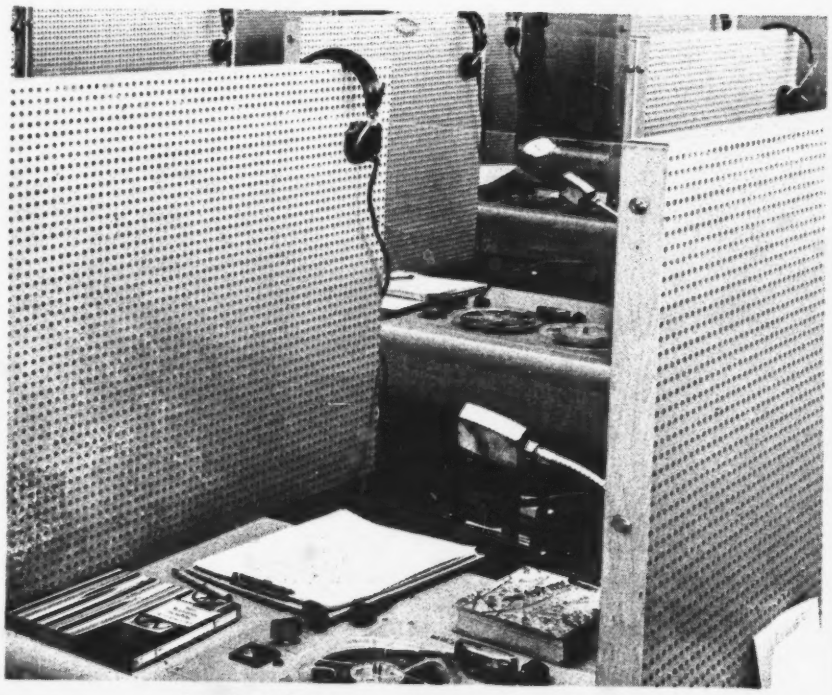
a. Student listens individually.



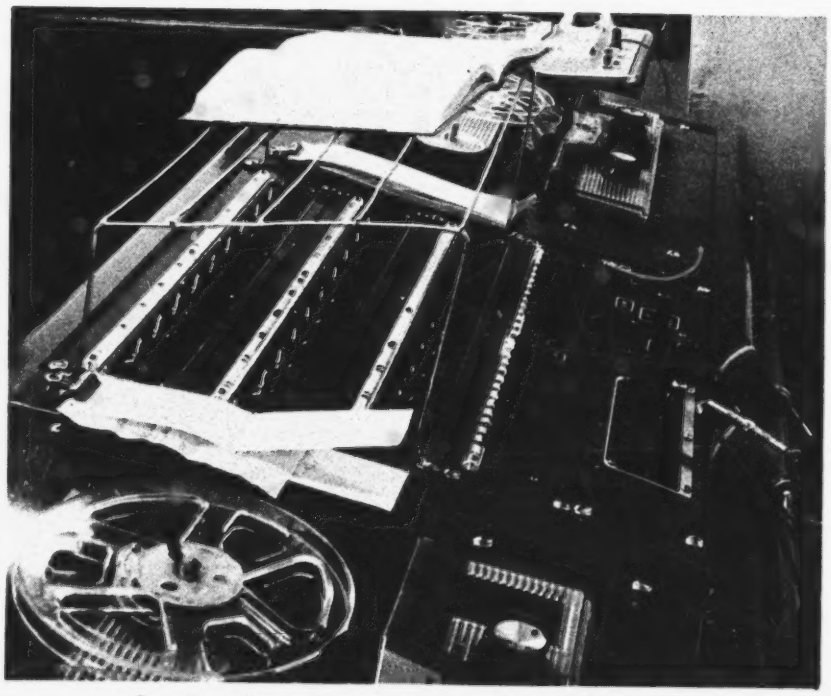
b. Student's voice can be recorded at central control unit by teacher.

4. *Are facilities to be provided for individual listening and simultaneous individual recording?* Laboratory equipment to serve this need is the same as that for number three except that an individual recording unit is added to the student's booth. This unit may be either a tape recorder or a tape deck (recorder minus the carrying case, such as is usually installed in the table part of the

booth). The student then has control of the recording process and can repeat a word or phrase heard as often as desired. The central control unit also provides facilities to permit the instructor to monitor each student as he works in the booth.



a. Student listens and records individually.



b. Teacher can monitor each student from central control.

In the above equipment, preference has been given to the tape recorder. The record player or phonograph is also a useful piece of equipment to aid in the teaching of modern foreign languages, but should be considered only when a tape recorder can not be provided or in order that records voiced by native speakers may be piped into the booths. The tape recorder serves as both player and recorder; tape can be used over and over without losing its fidelity; and tape will last indefinitely because it can be erased again and again. Record players are perhaps easier to operate, but this advantage has been largely nullified by tape recorder manufacturers. When a record player is purchased it is important to see that it has as high fidelity as possible and that it has the three speeds: 33 1/3, 45 and 78.

26.

If the tape recorder is the particular piece of equipment that you desire, there are several aspects to consider:

1. *Dual or single track?* Most tape recorders now manufactured are dual track recorders. A recorder of this type plays or records on two tracks. This is done by turning the tape over or by reversing the direction of the tape. The dual-track recorder should not be confused with the dual channel recorder described below. The single-track tape recorder records or plays on one wider track and can not be turned over or reversed for additional recording. The best place for this machine is in the control room of a laboratory.

a. The dual track recorder uses only one half the width of the tape for a recording surface.

b. The single track recorder utilizes the entire width or more than half of the tape for a recording surface.

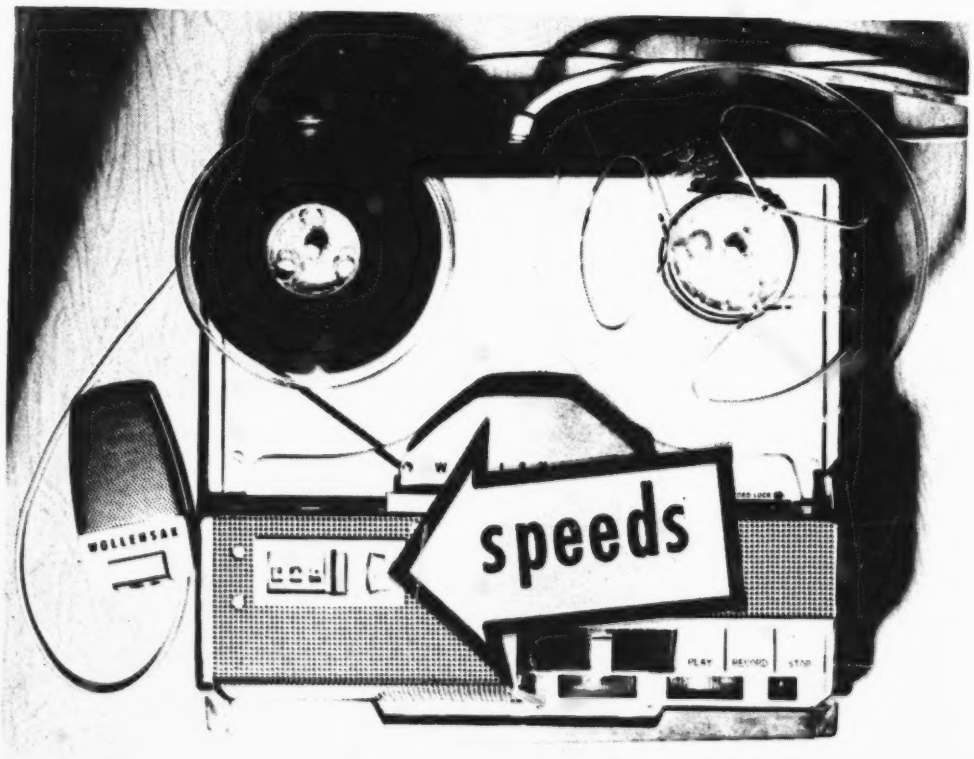
Answer: Choose a dual track recorder for all-around classroom use.

2. *One, two, or three speeds?* The speeds most common to tape recorders are 3¾ ips and 7½ ips. Some machines are now equipped with a speed of 1⅞ ips, but this speed is not necessary on a machine used in language study. The designation ips is an abbreviation of inches per second. The 3¾-inches-per-second speed is best utilized when the student is recording in the laboratory or with an individual machine because it saves tape. The reproduction of sound at this rate of speed is not as efficient as it is at a faster speed.

At the 7½-inches-per-second speed the machine is functioning at its peak

efficiency for the recording of any sound. Master tapes purchased from recording companies are usually recorded at this speed.

A tape recorded at 3¾ ips may be dubbed off to another tape at 7½ ips or vice versa. However, a tape must be played at the speed at which it was recorded for best results.



Answer: Be sure that the machine has two speeds: 3¾ ips and 7½ ips.

3. *Dual channel or single?* The dual-channel machine is designed for simultaneous listening and recording. With one record player head and one playback head, it is possible to record and play back the master at the same time without erasing the playback channel. This equipment is especially desirable for the language laboratory, but is adaptable to classroom use.

The recorder with the single record-playback head is the one most commonly in use. It is the least expensive and performs all the services normally required

of a tape recorder. The only advantage of the dual-channel recorder over this model is that of recording without danger of erasing prerecorded material.

A disadvantage, however, to the dual-channel recorder is that prerecorded master tapes bought from book companies or other sources must be, in most cases, recorded on the dual-channel machine before they can be used satisfactorily. Also, some dual-channel recorders are not equipped with a speaker, and earphones must be used with them.

A dual channel recorder allows for simultaneous recording on both tracks of the tape. The master voice is recorded on one track and the student response on the other. Only the student track can be erased easily without special equipment or detailed procedures.

Answer: Give some consideration to the dual channel recorder if a listening-response-playback situation is desired. For the best general all-around use, choose the regular dual track single record-playback machine.

If it has been decided that a language laboratory is to be constructed, and that it is to provide for an individual listening-response station, a separate room must be outfitted with booths. Several companies have equipment designed for this situation. The student listens to the master recording through earphones as it is played from a central control unit, and makes a response into a microphone that he hears as it "bounces" back to him.

It is recommended by many language teachers, however, that the best laboratory provide for three activities: Listening, response, and playback. In adding the third feature—playback—the student has the opportunity of playing back the master recording and his response as many times as he likes. It is through this opportunity to compare pronunciations that positive learning takes place.

The ideal number of booths in a laboratory is that number which equals or exceeds by two or three the enrollment of the largest class to use it. If the ideal can not be achieved, special arrangements will have to be made by the teacher so that every member of the class has the opportunity to utilize the laboratory. Some companies have individual booths which can be transformed into desks when desired for classroom use.

When figuring the area needed for a language laboratory, between 16 and 20 square feet should be estimated for each student position. This square footage will allow for aisle space (at least 2½ feet between rows) and room for the teacher's console (usually 3 feet by 6 feet). There are three common patterns of booth arrangement in a laboratory: Classroom, peripheral, and chevron. All three have their peculiar advantages and disadvantages.

a. Classroom b. Peripheral c. Chevron

Many colleges and universities have used their own maintenance departments to construct the soundproof booths, and have contracted with the company selling them the electronic equipment for the necessary wiring and installation. However, this is not true in the public schools, and special care should be taken to secure the best service agreement possible from the equipment dealer. Consider these criteria carefully:

1. Buy up-to-date equipment from a reliable company.
2. Test the machines by playing them at least eight consecutive hours to find out if they develop any distortion of sound.
3. Make sure that the equipment can be easily removed and replaced.
4. Choose equipment that students can operate easily.
5. Obtain a written guarantee of at least one year of free servicing.

Special thought should be given the location of the laboratory. There should be adequate lighting and ventilation, it should be readily accessible to the language classrooms, and it should not be located near a major noise area, *e. g.*, gymnasium, shop, band room.

Other useful and successful aids in the instruction of modern foreign langauges easily used in the laboratory are the sound movie projector, the filmstrip projector with attachment for showing slides, and the opaque projector. More and better films are now on the market which are especially adaptable to language laboratory work, and many filmstrips have accompanying sound tracks on tape or phonograph records.

It was implied at the beginning, and it should again be emphasized, that the information here given is provided by a language teacher as guide for other language teachers and is not the last word by any means. If more technical information is desired, the manufacturers named on the accompanying reference list will welcome inquiries about their equipment.

Reference List

Manufacturers of Magnetic Tape Recorders

The following list contains the names of companies whose products have been successful aids in the teaching of modern foreign languages:

Ampex Audio, Inc.
1000 Kifer Road
Sunnyvale, California

Armstrong-Templeman
Box 209
Abilene, Kansas

Bell & Howell Co.
7100 McCormick Road
Chicago 45, Illinois

The Pentron Corporation
777 South Tripp Avenue
Chicago 24, Illinois

V. M. Corporation
Benton Harbor, Michigan
Trade Mark: Voice of Music

Viking of Minneapolis
9600 Aldrich Avenue
South Minneapolis 20, Minnesota
(Tape Decks)

Electronic Teaching Lab. Inc.
1818 M Street, N. W.
Washington 6, D. C.
Trade Mark: Monitor, Monitoret-
Dual Channel

Radio Corporation of America
RCA Victor Division
Camden 2, New Jersey

Revere Camera Co.
320 E. Twenty-first Street
Chicago, Illinois

Rheem-Califone Corporation
Hollywood 38, California

Tandberg of America
10 E. Fifty-second Street
New York, New York

Webcor, Inc.
5610 W. Bloomingdale Avenue
Chicago, Illinois

Webster Electric-Electronics Division
Racine, Wisconsin
Trade Mark: Ekotape

Wollensak Optical Company
20 E. Twenty-first Street
Chicago 16, Illinois
Trade Mark: Wollensak

Manufacturers of Language Laboratory Equipment

Several of the manufacturers of tape recorders are now manufacturing the equipment necessary in equipping a language laboratory. These and others specializing in the language laboratory are listed below:

Audio Teaching Center Inc.
Audio Lane
New Haven, Connecticut
(Dual Channel Recorder)

Chester Electronic Laboratories, Inc.
Chester, Connecticut

Dictaphone
730 Third Avenue
New York 17, New York

Dukane Corporation
St. Charles, Illinois

Edwards Company, Inc.
Norwalk, Connecticut

Electronic Teaching Lab.
1818 M Street, N. W.
Washington 6, D. C..
Trade Mark: Monitor, Monitoret-
Dual Channel

Language Training Aids
Language Center
Boyds, Maryland

Magnetic Recording Industries
126 Fifth Avenue
New York 11, New York

Murray Languages, Inc.
580 Fourteenth Street, N. W.
Atlanta, Georgia

Radio Corporation of America
RCA Victor Division
Camden 2, New Jersey

Rheem-Califone Corporation
Hollywood 38, California

Science Electronics, Inc.
Lingua-Trainer
195 Massachusetts Avenue
Cambridge 42, Massachusetts

Webster Electric-Electronics Division
Racine, Wisconsin

32.

Audio-visual Aids for Students and Teachers of Modern Foreign Languages

Records, tapes, films, filmstrips, realia, and other audio-visual materials are available from many sources. The references below, however, should be able to fill any need that you might have:

1. Educational Services
   1730 Eye Street, N. W.
   Washington, D. C.

2. EMC Recordings Corp.
   806 East Seventh Street
   St. Paul 6, Minnesota

3. Language Training Aids
   Language Center
   Boyds, Maryland

4. Banks Upshaw & Co.
   703 Browder Street
   Dallas 1, Texas

5. Textbook companies with records or tapes to accompany texts:

   American Book Co.
   55 Fifth Avenue
   New York 3, New York

   Appleton-Century-Crofts
   35 West Thirty-second Street
   New York 1, New York

   Funk & Wagnalls Co.
   153 East Twenty-fourth Street
   New York 10, New York

   Ginn & Co.
   72 Fifth Avenue
   New York 11, New York

   Harcourt, Brace & World
   750 Third Avenue
   New York 17, New York

   D. C. Heath & Co.
   285 Columbus Avenue
   Boston 16, Massachusetts

   Henry Holt & Co.
   383 Madison Avenue
   New York 17, New York

   Houghton Mifflin Co.
   532 Fourth Street
   New York 16, New York

   Oxford University Press,
   114 Fifth Avenue
   New York 11, New York

Foreign Language Laboratory References

Brooks, Nelson, *Language and Language Learning.* Theory and practice. New York. Harcourt, Brace & Co., Inc., 1960. 238p.

Council of Chief State School Officers, and Others, *Purchase Guide for Programs in Science, Mathematics, and Modern Foreign Language.* Supplement to Purchase Guide for Programs in Science, Mathematics, and Modern Foreign Language. Boston. Ginn & Co., 1959, 1961. 336p., 60p.

U. S. Office of Education, *Foreign Language Laboratories in Schools and Colleges.* U. S. Department of Health, Education, and Welfare, Washington, D. C.

Hocking, Elton, "Language Laboratories." *Nation's Schools.* 67:83:86, February, 1961.

Kone, Elliott H., "Language Laboratories." *Modern Techniques in Teaching Foreign Languages.* Connecticut Audio-Visual Education Association Bulletin 19. New Haven, Connecticut, 1960. 60p. Available from Yale University, Audio-Visual Center, 130 Wall Street, New Haven, Connecticut.

Lebel, C. J., *How to Make Good Tape Recordings.* New York Audio Devices, Inc. Available from publisher at 444 Madison Avenue, New York 22, New York, Price: Cloth $2.50, Paper $1.50.

Modern Foreign Languages in High School The Language Laboratory. U. S. Department of Health, Education, and Welfare. Washington 25, D. C., 1961. Available from the U. S. Government Printing Office for 35¢.

Stack, Edward M., *The Language Laboratory and Modern Language Teaching.* New York. Oxford University Press, 1960. 149p.